



South Coast Air Quality Management District

Facility Prioritization Procedures For AB 2588 Program

June 2015

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I. INTRODUCTION

The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (commonly known as AB 2588) established a statewide program for the inventory of air toxics emissions from individual facilities as well as requirements for risk assessment and public notification of potential health risks. AB 2588 requires the South Coast Air Quality Management District (SCAQMD) to designate high, intermediate, and low priority categories and include each facility within the appropriate category based on its individual priority. In establishing priorities, the SCAQMD is to consider the potency, toxicity, quantity and volume of hazardous materials released from the facility; the proximity of the facility to potential receptors, including, but not limited to, hospitals, schools, daycare centers, worksites and residences; and any other factors that the SCAQMD finds and determines may indicate that the facility may pose a significant risk to receptors.

II. FACILITY PRIORITIZATION PROCEDURE

This document describes the facility prioritization procedure utilized by the SCAQMD. The procedure is based on the upcoming 2015 version of the Emissions and Potency Procedure recommended by the Facility Prioritization Guidelines of the AB 2588 Risk Assessment Committee of the California Air Pollution Control Officers Association (CAPCOA Procedures). The 2015 version of the CAPCOA procedure is expected to use the same methodology as the previous version of the CAPCOA procedures adopted in 1990, with the exception that a normalization factor has been updated to reflect updates to OEHHA's 2015 update to its Air Toxics Hot Spots Program Guidance Manual for Preparation of Risk Assessments (OEHHA Guidance Manual).

The CAPCOA Procedures primarily rely on three parameters to prioritize facilities: emissions, potency or toxicity, and the proximity to potential receptors. In September 1990, the SCAQMD refined the original CAPCOA Procedures to include adjustment factors for receptor proximity, exposure period, and averaging times in addition to the treatment of multi-pathway pollutants. In August 2004, SCAQMD revised its Procedures to accommodate the use of cancer potency factors (instead of unit risk factors) to allow for daily breathing rate and body weight variations as well as revised multi-pathway factors for resident and workers. In March 2011, the SCAQMD Procedures were revised to include updated toxicity criteria. This document supersedes the March 2011 Version to accommodate new risk calculation methodologies laid out in the 2015 OEHHA Guidance Manual.

For prioritization, a facility receives two scores: one for carcinogenic (cancer) effects and the other for non-cancer effects. The facility is then ranked based on the higher of these two scores. Three categories are used in the ranking: high priority (Category A), intermediate priority (Category B) and low priority (Category C). Based on the Total Facility Score (TS), facilities designated as high priority are required to submit Heath Risk Assessments to assess the risk to their surrounding community. Facilities ranked with intermediate priority are considered to be District tracking facilities, which are then required to submit complete toxics inventory once every four years. Facilities ranked with low priority are exempt from reporting. Due to the very conservative nature of the screening risk assessment used for prioritization, and consistent with CAPCOA's Procedures, a priority score of 10 is equivalent to a calculated cancer risk of 100 per million or a HI of 10. The following table summarizes thresholds used to prioritize facilities:

Table 1

Total Facility Score (TS)	Category
TS > 10	High Priority
1 < TS ≤ 10	Intermediate Priority
TS ≤ 1	Low Priority

Facilities subject to AB2588 are required to submit a detailed list of their toxic emissions every four years (referred to as a quadrennial update). Based on their level of toxic and criteria pollutant emissions, each year a different group of facilities will report a detailed list of its toxic emissions. Upon initial prioritization of facilities, the SCAQMD staff conducts further analyses to verify the Priority Score such as confirming the distance to the sensitive receptors and workers, reviewing emissions trends and facility changes such as new or modified permitted equipment or pollution controls, and comparing the Priority Score results with the last Health Risk Assessment submittal or Risk Reduction Plan, if applicable. This additional information obtained through Priority Score auditing will often negate the need to ask for a Health Risk Assessment. If, however, the Prioritization Score remains high, the facility is asked to prepare an Air Toxics Inventory Report and Health Risk Assessment.

A. Calculation of Cancer Score

The facility scores for residential and worker cancer effects are calculated as follows:

$$TS_r = \sum \{ (E_c) (CP_c) (10^{-6}) (MP_{c,r}) \} (RP) (676.63) (10^5), \text{ or}$$

$$TS_w = \sum \{ (E_c) (CP_c) (10^{-6}) (MP_{c,w}) \} (RP) (WAF) (56.26) (10^5)$$

Where;

- TS = Total facility score, the sum of scores for all carcinogens
- c = Specific carcinogen
- r = Residential Receptor
- w = Worker Receptor
- Ec = Annual emissions of carcinogen, c (lbs/year)
- CPc = Cancer potency of carcinogen substance, c (mg/kg-day)-1
- 10⁻⁶ = Micrograms to milligrams conversion, liters to cubic meters conversion
- MPc = Multi-pathway adjustment factor of carcinogen, c; there are separate multi-pathway factors for residence and worker; see Table 4
- RP = Receptor proximity adjustment factor, χ/Q ((μg/m³)/(lbs/year))
- WAF = Worker Adjustment Factor (dimensionless)
- 676.63 = Residential Combined Exposure Factor that accounts for age-specific breathing rate, age specific factor, exposure duration, exposure frequency, and averaging time from 2015 OEHHA Guidance Manual
- 56.26 = Worker Combined Exposure Factor that accounts for age-specific breathing rate, age specific factor, exposure duration, exposure frequency, and averaging time from 2015 OEHHA Guidance Manual
- 10⁵ = Scalar to adjust priority score to 1-10 scale

Annual Emissions:

Annual emissions of carcinogens are taken from the TACS and TACS-O Facility Summary Forms of the Annual Emission Reporting (AER) Program. Each toxic substance has a degree of accuracy associated with them that is a de-minimis emission level for reporting. As a result, facility-wide toxic emissions greater than one-half of their corresponding degree of accuracy are inventoried and reported. Conversely, total facility toxic emissions less than one-half of their corresponding degree of accuracy levels are not considered in the prioritization. The substances and associated degree of accuracy levels are listed in Table 3.

Cancer Potency:

The Cancer Potency factor (CP) is a measure of the cancer potency of a carcinogen. The cancer potency factor is the estimated probability that a person will contract cancer as a result of a daily inhalation of 1 milligram of the carcinogen per kilogram of body weight continuously over a period of 70 years. The cancer potency factors used in these procedures are published by the Office of Environmental Health Hazard Assessment (OEHHHA). The latest CP values can be obtained from the following website: <http://www.arb.ca.gov/toxics/healthval/healthval.htm>

Multi-pathway Adjustment Factor:

The multi-pathway (MP_c) adjustment factor is used for carcinogens that may contribute to risk from exposure pathways other than inhalation. These substances deposit on the ground in particulate form and contribute to risk through ingestion of soil or backyard garden vegetables or through other routes. This factor is used to account for additional risks from exposure through non-inhalation pathways. The MP_c adjustment factors for specific carcinogens have been developed by SCAQMD staff by using the Health Risk Assessment Standalone Tool (RAST) developed by California Air Resources Board (CARB).¹ The MP_c factors also satisfy the requirements of the SCAQMD Risk Assessment Procedures for Rules 1401 and 212. The substances and associated MP_c adjustment factors for worker and residents are listed in Table 4. For cancer causing compounds that only affect the inhalation pathway, the MP_c adjustment factor is set to one. The SCAQMD Risk Assessment Procedures for Rules 1401 and 212 (SCAQMD Rule 1401 HRA Procedures) can be obtained from the following web site: <http://www.SCAQMD.gov/home/permits/risk-assessment>

Receptor Proximity Adjustment Factor:

The Receptor Proximity (RP) adjustment factor is calculated based on the distances from the facility to the nearest receptor. Receptor locations are off-site, where persons may be exposed to toxic emissions from equipment. The receptor distance is defined as the closest distance between any source of air toxic emissions at the facility and the property boundary of any one of the receptor locations. A distance of 50 meters is assumed for a facility without specified receptor distances corresponding to the highest adjustment factor. Separate RP adjustment factors are developed to serve different patterns of annual and hourly averaged wind conditions. The RP formulas in Table 2 below were developed based on the dispersion factors (χ/Q) developed for the SCAQMD Rule 1401 HRA Procedures. The RP adjustment factor is calculated from the following table:

¹ <http://www.arb.ca.gov/toxics/harp/harp.htm>

Table 2

Distance to Receptor (R in m)	Emission Rate	Receptor Proximity Adjustment Factor (RP)
R ≤ 50	Annual Concentration	0.030850
	Hourly Concentration	0.167129 x OPH*
R > 50	Annual Concentration	105.4645 x R ^(-2.08)
	Hourly Concentration	176.6925 x R ^(-1.78) x OPH*

* OPH Actual operating hours

Worker Adjustment Factor:

The modeled annual average air concentration should be adjusted to the air concentration that the worker is actually exposed to if the source does not operate continuously. The worker adjustment factor is calculated by following equation:

$$WAF = ([H_{res}]/[H_{source}]) \times ([D_{res}]/[D_{source}])$$

Where,

- [H_{res}] = Number of hours per day the annual average residential air concentration is based on (always 24 hours)
- [H_{source}] = Number of hours the source operates per day
- [D_{res}] = Number of days per week the annual average residential air concentration is based on (always 7 days)
- [D_{source}] = Number of days the source operates per week

B. Calculation of Non-Cancer Score

For a toxic substance, non-cancer health effects can occur via acute, 8-hour chronic, and/or annual chronic exposure. All of these non-cancer effects are used in the facility prioritization. For each substance associated with acute, 8-hour and chronic toxicity, the SCAQMD calculates separate scores using the formulas shown below.

Non-Cancer Chronic Score:

For a facility which emits pollutants with known non-cancer chronic health effects, its scores for non-cancer effects are calculated as follows:

$$TS_r^* = \sum \{ (E_t) (MP_{t,r}) / (REL_t) \} (RP_r), \text{ or}$$

$$TS_w^* = \sum \{ (E_t) (MP_{t,w}) / (REL_t) \} (WAF) (RP_w)$$

Where;

- TS* = Total facility score, the sum of score for all substances with non-cancer effects
- t = Toxic substance
- r = Residential Receptor
- w = Worker Receptor

- E_t = Annual emissions of toxic substance, t (lbs/year)
 REL_t = Reference exposure level of toxic substance, t ($\mu\text{g}/\text{m}^3$)
 MP_t = Multi-pathway adjustment factor of non-cancer chronic toxic substance, t; there are separate multi-pathway factors for residence and worker; see Table 4
 RP = Receptor proximity adjustment factor, χ/Q ($(\mu\text{g}/\text{m}^3)/(\text{lbs}/\text{year})$)
 WAF = Worker Adjustment Factor (dimensionless)

Non-Cancer 8-Hour Score:

For a facility which emits pollutants with known non-cancer 8-hour health effects, its scores for non-cancer effects are calculated as follows:

$$TS_r^* = \sum \{ (E_t) / (REL_t) \} (WAF) (RP_r), \text{ or}$$

$$TS_w^* = \sum \{ (E_t) / (REL_t) \} (WAF) (RP_w)$$

Where;

- TS^* = Total facility score, the sum of score for all substances with non-cancer effects
 t = Toxic substance
 r = Residential Receptor
 w = Worker Receptor
 E_t = Annual emissions of toxic substance, t (lbs/year)
 REL_t = Reference exposure level of toxic substance, t ($\mu\text{g}/\text{m}^3$)
 RP = Receptor proximity adjustment factor, χ/Q ($(\mu\text{g}/\text{m}^3)/(\text{lbs}/\text{year})$)
 WAF = Worker Adjustment Factor (dimensionless)

Non-Cancer Acute Score:

For a facility which emits pollutants with known non-cancer acute health effects, its score for non-cancer effects is calculated as follows:

$$TS^* = \sum \{ (E_t) / (REL_t) \} (RP_h)$$

Where;

- TS^* = Total facility score, the sum of score for all substances with non-cancer effects
 t = Toxic substance
 E_t = Maximum hourly emissions of toxic substance, t (lbs/hr)
 REL_t = Reference exposure level of toxic substance, t ($\mu\text{g}/\text{m}^3$)
 RP_h = Receptor proximity adjustment factor for hourly concentration, χ/Q ($(\mu\text{g}/\text{m}^3)/(\text{lbs}/\text{hr})$)

Annual and Maximum Hourly Emissions:

Two different emissions rates are required for calculating the facility score for non-cancer health effects. The methodology for calculating the non-cancer score for chronic exposure requires annual emissions (lbs/year) for each emitted pollutant whereas calculation of the non-cancer score for acute exposure requires maximum hourly emissions (lbs/hr) for each emitted pollutant. Annual emissions are taken from the TACS and TACS-O Facility Summary Forms of the AER Program. As specified in Section II.A, emissions of specified substances, which are below one-half of their corresponding degree of accuracy levels are neglected in the computation. Maximum hourly

emissions are obtained by dividing the annual emissions (lbs/year) by the facility's actual operating hours that are then multiplied by a maximum hourly emission adjustment factor of 1.25.

Reference Exposure Levels:

Reference Exposure Level (REL) is used as an indicator of potential adverse non-cancer health effects, and refers to a concentration level ($\mu\text{g}/\text{m}^3$) or dose ($\text{mg}/\text{kg}\text{-day}$) at which no adverse health effects are anticipated. The RELs used in these procedures are published by OEHHA. The latest REL values can be obtained from the following website:

<http://www.arb.ca.gov/toxics/healthval/healthval.htm>

Multi-Pathway Adjustment Factor:

The Multi-Pathway (MP_t) adjustment factor is used for chronic substances that may contribute to risk from exposure pathways other than inhalation. Similar to discussion in Section II.A, MP_t adjustment factors only exist for selected chronic pollutants which can be found in Table 4. There are separate MP factors for worker and residents. For non-cancer chronic health effects compounds that only affect the inhalation pathway, the MP_t adjustment factor is set to one (1.0).

Worker Adjustment Factor:

The modeled annual average air concentration should be adjusted to the air concentration that the worker is actually exposed to if the source does not operate continuously. This is the same adjustment factor used in the calculation of the facility cancer score discussed in Section II.A.

Receptor Proximity Adjustment Factor:

The Receptor Proximity (RP) adjustment factor is calculated based on the distances from the facility to the nearest residence and the nearest worksite. The same adjustment factor used in the calculation of the facility cancer score discussed in Section II.A is applicable to non-cancer chronic effect. However, the RP adjustment factor for non-cancer acute effect is based on hourly concentration, and this factor can be calculated by the RP adjustment factor for annual concentration divided by actual operating hours.

C. Facility Ranking

From the computed scores for cancer and non-cancer effects, the total facility score is taken as the higher of the two scores, and serves as the basis for ranking a facility as follows:

- The facility is in the high category (Category A) if its highest score is greater than or equal to 10;
- The facility is in the intermediate category (Category B) if its highest score is greater than or equal to 1 but less than 10; and,
- The facility is in the low category (Category C) if its highest score is less than 1.

Table 3: De-Minimis Reporting Limits for Toxics

TAC Code	CAS	Substance	Degree of Accuracy (lbs/yr)
29	75070	Acetaldehyde	17
30	107028	Acrolein	0.05
31	107131	Acrylonitrile	0.1
32	7664417	Ammonia	200
14	7440382	Arsenic and Compounds (inorganic)	0.0015
1	1332214	Asbestos	2.3E-6
2	71432	Benzene	1.7
3	7440417	Beryllium	0.001
4	106990	Butadiene [1,3]	0.1
5	7440439	Cadmium	0.01
6	56235	Carbon tetrachloride	1
33	463581	Carbonyl sulfide	100
34	7782505	Chlorine	0.5
35	67663	Chloroform	10
13	18540299	Chromium, hexavalent (and compounds)	1.0E-4
36	7440508	Copper	0.1
37	7631869	Crystalline silica	0.1
38	117817	Di(2-ethylhexyl) phthalate {DEHP}	3.9
7	1080	Chlorinated dioxins and dibenzofurans	7.3E-8
	67562394	1,2,3,4,6,7,8-Heptachlorodibenzofuran [POM]	1.0E-6
	55673897	1,2,3,4,7,8,9-Heptachlorodibenzofuran [POM]	1.0E-6
	35822469	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin [POM]	1.0E-6
	70648269	1,2,3,4,7,8-Hexachlorodibenzofuran [POM]	7.3E-7
	57117449	1,2,3,6,7,8-Hexachlorodibenzofuran [POM]	7.3E-7
	72918219	1,2,3,7,8,9-Hexachlorodibenzofuran [POM]	7.3E-7
	60851345	2,3,4,6,7,8-Hexachlorodibenzofuran [POM]	7.3E-7
	39227286	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin [POM]	5.1E-7
	57653857	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin [POM]	5.1E-7
	19408743	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin [POM]	5.1E-7
	39001020	1,2,3,4,5,6,7,8-Octachlorodibenzofuran [POM]	1.0E-6
	3268879	1,2,3,4,5,6,7,8-Octachlorodibenzo-p-dioxin [POM]	1.0E-6
	57117416	1,2,3,7,8-Pentachlorodibenzofuran [POM]	1.0E-6
	57117314	2,3,4,7,8-Pentachlorodibenzofuran [POM]	2.4E-7
	40321764	1,2,3,7,8-Pentachlorodibenzo-p-dioxin [POM]	5.1E-8
	51207319	2,3,7,8-Tetrachlorodibenzofuran [POM]	7.2E-8
	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin {TCDD} [POM]	5.1E-8
27	78875	1,2-Dichloropropane {Propylene dichloride}	20
28	542756	1,3-Dichloropropene	10
72	9901	Diesel exhaust particulates	0.1
39	131113	Dimethyl phthalate	50
8	123911	1,4-Dioxane	5
40	100414	Ethyl benzene	20
9	106934	Ethylene dibromide {1,2-Dibromoethane}	0.5

Table 3: De-Minimis Reporting Limits for Toxics

TAC Code	CAS	Substance	Degree of Accuracy (lbs/yr)
10	107062	Ethylene dichloride {1,2-Dichloroethane}	2
11	75218	Ethylene oxide	0.5
22	1104	Fluorocarbons (chlorinated)	1
	76131	<i>Chlorinated fluorocarbon {CFC-113}</i>	1
	75434	<i>Dichlorofluoromethane {Freon 12}</i>	1
	75694	<i>Trichlorofluoromethane {Freon 11}</i>	1
12	50000	Formaldehyde	5
41	1115	Glycol ethers and their acetates	100
	111466	<i>Diethylene glycol</i>	100
	111966	<i>Diethylene glycol dimethyl ether</i>	100
	112345	<i>Diethylene glycol monobutyl ether</i>	100
	111900	<i>Diethylene glycol monoethyl ether</i>	100
	111773	<i>Diethylene glycol monomethyl ether</i>	100
	25265718	<i>Dipropylene glycol</i>	100
	34590948	<i>Dipropylene glycol monomethyl ether</i>	100
	629141	<i>Ethylene glycol diethyl ether</i>	100
	110714	<i>Ethylene glycol dimethyl ether</i>	100
	111762	<i>Ethylene glycol monobutyl ether</i>	200
	110805	<i>Ethylene glycol monoethyl ether</i>	50
	111159	<i>Ethylene glycol monoethyl ether acetate</i>	100
	109864	<i>Ethylene glycol monomethyl ether</i>	10
	110496	<i>Ethylene glycol monomethyl ether acetate</i>	200
	2807309	<i>Ethylene glycol monopropyl ether</i>	100
	107982	<i>Propylene glycol monomethyl ether</i>	200
	108656	<i>Propylene glycol monomethyl ether acetate</i>	100
	112492	<i>Triethylene glycol dimethyl ether</i>	100
42	118741	Hexachlorobenzene	0.096
43	608731	Hexachlorocyclohexanes	0.008
	319846	<i>alpha-Hexachlorocyclohexane</i>	0.008
	319857	<i>beta-Hexachlorocyclohexane</i>	0.008
	58899	<i>Lindane {gamma-Hexachlorocyclohexane}</i>	0.03
44	110543	Hexane	200
45	302012	Hydrazine	0.01
46	7647010	Hydrochloric acid	20
73	7664393	Hydrogen fluoride (hydrofluoric acid)	20
47	7783064	Hydrogen sulfide	5
48	1125	Isocyanates and diisocyanates	0.05
	822060	<i>Hexamethylene-1,6-diisocyanate</i>	0.05
	624839	<i>Methyl isocyanate</i>	1
	101688	<i>Methylene diphenyl diisocyanate {MDI} [POM]</i>	0.1
	1204	<i>Toluene diisocyanates</i>	0.1
	584849	<i>Toluene-2,4-diisocyanate</i>	0.1
	91087	<i>Toluene-2,6-diisocyanate</i>	0.1
15	7439921	Lead compounds (inorganic)	0.36

Table 3: De-Minimis Reporting Limits for Toxics

TAC Code	CAS	Substance	Degree of Accuracy (lbs/yr)
49	7439965	Manganese	0.1
50	7487947	Mercury and mercury compounds <i>Mercuric chloride</i>	0.9
	7439976	<i>Mercury</i>	0.9
	593748	<i>Methyl mercury {Dimethylmercury}</i>	1
51	67561	Methanol	200
52	74873	Methyl chloride {Chloromethane}	20
23	71556	Methyl chloroform {1,1,1-Trichloroethane}	1
53	78933	Methyl ethyl ketone {2-Butanone}	200
54	108101	Methyl isobutyl ketone {Hexone}	20
55	1634044	Methyl tert-butyl ether	96
16	75092	Methylene chloride {Dichloromethane}	49.1
17	7440020	Nickel	0.1
57	106467	P-Dichlorobenzene {1,4-Dichlorobenzene}	4.3
19	1151	PAHs, total, w/o individ. components reported [PAH, POM]	0.2
	83329	<i>Acenaphthene [PAH, POM]</i>	1
	208968	<i>Acenaphthylene [PAH, POM]</i>	1
	120127	<i>Anthracene [PAH, POM]</i>	1
	56553	<i>Benz[a]anthracene [PAH, POM]</i>	0.02
	50328	<i>Benzo[a]pyrene [PAH, POM]</i>	0.002
	205992	<i>Benzo[b]fluoranthene [PAH, POM]</i>	0.02
	192972	<i>Benzo[e]pyrene [PAH, POM]</i>	0.5
	191242	<i>Benzo[g,h,i]perylene [PAH, POM]</i>	0.5
	205823	<i>Benzo[j]fluoranthene [PAH, POM]</i>	0.02
	207089	<i>Benzo[k]fluoranthene [PAH, POM]</i>	0.02
	218019	<i>Chrysene [PAH, POM]</i>	0.2
	53703	<i>Dibenz[a,h]anthracene [PAH, POM]</i>	0.005
	192654	<i>Dibenzo[a,e]pyrene [PAH, POM]</i>	0.0002
	189640	<i>Dibenzo[a,h]pyrene [PAH, POM]</i>	0.0002
	189559	<i>Dibenzo[a,i]pyrene [PAH, POM]</i>	0.0002
	191300	<i>Dibenzo[a,l]pyrene [PAH, POM]</i>	0.0002
	206440	<i>Fluoranthene [PAH, POM]</i>	0.5
	86737	<i>Fluorene [PAH, POM]</i>	0.5
	193395	<i>Indeno[1,2,3-cd]pyrene [PAH, POM]</i>	0.02
	91576	<i>2-Methyl naphthalene [PAH, POM]</i>	1
	91203	<i>Naphthalene [PAH, POM]</i>	0.1
	198550	<i>Perylene [PAH, POM]</i>	0.5
	85018	<i>Phenanthrene [PAH, POM]</i>	0.5
	129000	<i>Pyrene [PAH, POM]</i>	0.5
56	1336363	PCBs (Polychlorinated biphenyls) [POM]	0.0002
58	87865	Pentachlorophenol	9.6
18	127184	Perchloroethylene {Tetrachloroethene}	5
59	7723140	Phosphorus	0.1

Table 3: De-Minimis Reporting Limits for Toxics

TAC Code	CAS	Substance	Degree of Accuracy (lbs/yr)
60	7803512	Phosphorous compounds <i>Phosphine</i>	0.01
	7664382	<i>Phosphoric acid</i>	50
	10025873	<i>Phosphorus oxychloride</i>	0.1
	10026138	<i>Phosphorus pentachloride</i>	0.1
	1314563	<i>Phosphorus pentoxide</i>	0.1
	7719122	<i>Phosphorus trichloride</i>	0.1
	126738	<i>Tributyl phosphate</i>	100
	78400	<i>Triethyl phosphine</i>	100
	512561	<i>Trimethyl phosphate</i>	100
	78308	<i>Triorthocresyl phosphate [POM]</i>	0.5
	115866	<i>Triphenyl phosphate [POM]</i>	100
	101020	<i>Triphenyl phosphite [POM]</i>	100
61	226368	POMS and PAH-derivatives <i>Dibenz[a,h]acridine [POM]</i>	0.02
	224420	<i>Dibenz[a,j]acridine [POM]</i>	0.02
	194592	<i>7H-Dibenzo[c,g]carbazole</i>	0.002
	57976	<i>7,12-Dimethylbenz[a]anthracene [PAH-Derivative, POM]</i>	9.0E-5
	42397648	<i>1,6-Dinitropyrene [PAH-Derivative, POM]</i>	2.0E-4
	42397659	<i>1,8-Dinitropyrene [PAH-Derivative, POM]</i>	0.002
	56495	<i>3-Methylcholanthrene [PAH-Derivative, POM]</i>	9.8E-4
	3697243	<i>5-Methylchrysene [PAH-Derivative, POM]</i>	0.002
	101779	<i>4,4'-Methylenedianiline (and its dichloride) [POM]</i>	0.015
	602879	<i>5-Nitroacenaphthene [POM]</i>	0.17
	7496028	<i>6-Nitrochrysene [PAH-Derivative, POM]</i>	2.0E-4
	607578	<i>2-Nitrofluorene [PAH-Derivative, POM]</i>	0.2
	5522430	<i>1-Nitropyrene [PAH-Derivative, POM]</i>	0.02
	57835924	<i>4-Nitropyrene [POM]</i>	0.02
62	75569	Propylene oxide	10
63	91225	Quinoline	100
64	7783075	Selenium and compounds <i>Hydrogen selenide</i>	0.1
	7782492	<i>Selenium</i>	0.5
	7446346	<i>Selenium sulfide</i>	0.1
65	1310732	Sodium hydroxide	2
66	100425	Styrene	100
24	79345	1,1,2,2-Tetrachloroethane	0.86
67	8014957	Sulfuric acid and oleum <i>Oleum</i>	2
	7664939	<i>Sulfuric acid</i>	2
	7446719	<i>Sulfuric trioxide</i>	2
68	108883	Toluene	200
25	79005	1,1,2-Trichloroethane { Vinyl trichloride }	3
20	79016	Trichloroethylene	20

Table 3: De-Minimis Reporting Limits for Toxics

TAC Code	CAS	Substance	Degree of Accuracy (lbs/yr)
26	95636	1,2,4-Trimethylbenzene	5
69	51796	Urethane {Ethyl carbamate}	0.1
21	75014	Vinyl chloride	0.5
70	1330207	Xylenes	200
	108383	<i>m-Xylene</i>	200
	95476	<i>o-Xylene</i>	200
	106423	<i>p-Xylene</i>	200
71	75456	Chlorodifluoromethane {Freon 22}	200

Table 4 Multi-pathway Adjustment Factor

CAS	Substance	Cancer Risk		Chronic Hazard	
		Residential	Worker	Residential	Worker
1080	Polychlorinated Dibenzo-p-Dioxins (PCDD) (as 2,3,7,8-Equiv)	18.187	7.584	154.968	6.726
1151	Polycyclic Aromatic Hydrocarbon (PAHs)	23.116	6.619	1.000	1.000
50328	Benzo[a]pyrene	23.116	6.619	1.000	1.000
53703	Dibenz[a,h]anthracene	7.989	2.485	1.000	1.000
56495	Methylcholanthrene, 3-	7.989	2.485	1.000	1.000
56553	Benz[a]anthracene	23.116	6.619	1.000	1.000
57976	Dimethylbenz[a]anthracene, 7,12-	7.989	2.485	1.000	1.000
58899	Hexachlorocyclohexane, gamma- (lindane)	5.387	1.252	1.000	1.000
101779	Methylene dianiline, 4,4'- (and its dichloride)	7.220	2.472	1.000	1.000
117817	Bis(2-ethylhexyl)phthalate (DEHP)	5.221	1.048	1.000	1.000
189559	Dibenzo[a,i]pyrene	23.116	6.619	1.000	1.000
189640	Dibenzo[a,h]pyrene	23.116	6.619	1.000	1.000
191300	Dibenzo[a,l]pyrene	23.116	6.619	1.000	1.000
192654	Dibenzo[a,e]pyrene	23.116	6.619	1.000	1.000
193395	Indeno(1,2,3-C,D)pyrene	23.116	6.619	1.000	1.000
194592	Dibenzo[c,g]carbazole, 7H-	23.116	6.619	1.000	1.000
205823	Benzo[j]fluoranthene	23.116	6.619	1.000	1.000
205992	Benzo[b]fluoranthene	23.116	6.619	1.000	1.000
207089	Benzo[k]fluoranthene	23.116	6.619	1.000	1.000
218019	Chrysene	23.116	6.619	1.000	1.000
224420	Dibenz[a,j]acridine	23.116	6.619	1.000	1.000
226368	Dibenz[a,h]acridine	23.116	6.619	1.000	1.000
319846	alpha-Hexachlorocyclohexane	5.387	1.252	1.000	1.000
319857	beta-Hexachlorocyclohexane	5.387	1.252	1.000	1.000
602879	Nitroacenaphthene, 5-	7.989	2.485	1.000	1.000
607578	Nitrofluorene, 2-	23.116	6.619	1.000	1.000
608731	Hexachlorocyclohexane (technical grade)	5.387	1.252	1.000	1.000
1336363	Polychlorinated biphenyls (PCBs)	18.939	13.118	1.000	1.000
1746016	Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	25.719	7.584	307.600	6.726
3268879	Octachlorodibenzo-p-dioxin, 1,2,3,4,6,7,8,9-	25.719	7.585	302.952	6.640
3697243	Methylchrysene, 5-	23.116	6.619	1.000	1.000
5522430	Nitropyrene, 1-	23.116	6.619	1.000	1.000
7439921	Lead and lead compounds	11.415	5.826	1.000	1.000
7439976	Mercury and mercury compounds (inorganic)	1.000	1.000	3.861	2.109
7440382	Arsenic and arsenic compounds (inorganic)	9.712	4.519	88.029	28.374
7440439	Cadmium and cadmium compounds	1.000	1.000	1.976	1.201
7446346	Selenium sulfide	1.000	1.000	195.576	23.710
7487947	Mercuric chloride	1.000	1.000	3.861	2.109
7496028	Nitrochrysene, 6-	23.116	6.619	1.000	1.000
7664393	Hydrogen fluoride (hydrofluoric acid)	1.000	1.000	6.064	2.987

Table 4 Multi-pathway Adjustment Factor

CAS	SUBSTANCE	Cancer Risk		Chronic Hazard	
		Residential	Worker	Residential	Worker
7782492	Selenium and selenium compounds, other than hydrogen selenide	1.000	1.000	195.576	23.710
18540299	Chromium, hexavalent	1.597	1.023	2.436	1.000
19408743	Hexachlorodibenzo-p-dioxin, 1,2,3,7,8,9-	25.719	7.584	307.600	6.726
35822469	Heptachlorodibenzo-p-dioxin, 1,2,3,4,6,7,8-	25.719	7.584	307.600	6.726
39001020	Octachlorodibenzofuran, 1,2,3,4,6,7,8,9-	18.187	7.585	152.633	6.640
39227286	Hexachlorodibenzo-p-dioxin, 1,2,3,4,7,8-	25.719	7.584	307.600	6.726
40321764	Pentachlorodibenzo-p-dioxin, 1,2,3,7,8-	25.719	7.584	307.600	6.726
42397648	Dinitropyrene, 1,6-	23.116	6.619	1.000	1.000
42397659	Dinitropyrene, 1,8-	23.116	6.619	1.000	1.000
51207319	Tetrachlorodibenzofuran, 2,3,7,8-	18.187	7.584	154.968	6.726
55673897	Heptachlorodibenzofuran, 1,2,3,4,7,8,9-	18.187	7.584	154.968	6.726
57117314	Pentachlorodibenzofuran, 2,3,4,7,8-	18.187	7.585	152.633	6.640
57117416	Pentachlorodibenzofuran, 1,2,3,7,8-	18.187	7.585	152.633	6.640
57117449	Hexachlorodibenzofuran, 1,2,3,6,7,8-	18.187	7.584	154.968	6.726
57653857	Hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8-	25.719	7.584	307.600	6.726
57835924	Nitropyrene, 4-	23.116	6.619	1.000	1.000
60851345	Hexachlorodibenzofuran, 2,3,4,6,7,8-	18.187	7.584	154.968	6.726
67562394	Heptachlorodibenzofuran, 1,2,3,4,6,7,8-	18.187	7.584	154.968	6.726
70648269	Hexachlorodibenzofuran, 1,2,3,4,7,8-	18.187	7.584	154.968	6.726
72918219	Hexachlorodibenzofuran, 1,2,3,7,8,9-	18.187	7.584	154.968	6.726

III. REFERENCES

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